



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,921	10/24/2003	Eric A. Johnson	END920010133US1 (15171)	9037
23389	7590	06/14/2005	EXAMINER DUPUIS, DEREK L	
SCULLY SCOTT MURPHY & PRESSER, PC 400 GARDEN CITY PLAZA SUITE 300 GARDEN CITY, NY 11530			ART UNIT 2883	
			PAPER NUMBER	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/692,921

Applicant(s)

JOHNSON ET AL.

Examiner

Derek L. Dupuis

Art Unit

2883

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 21-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 2-10 and 12-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

**Species A** (claims 1-20) is directed towards an opto-electronic package with a contact pad located on a surface of a first cladding layer which is further located on a substrate.

**Species B** (claims 21-23) is directed towards an opto-electronic package with a contact pad (first signal conductor) located directly on the first layer.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to

Art Unit: 2883

be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Arther J. Samadovitz (Reg No 31,297) on 6/9/2005 a provisional election was made without traverse to prosecute the invention of Species A, claims 1-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 21-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Information Disclosure Statement***

4. The information disclosure statement filed 10/24/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file. The references that have been initialed by the examiner have been considered and those references that were lined through have not been considered.

#### ***Drawings***

5. The drawings were received on 10/24/2003 are accepted by the examiner.

Art Unit: 2883

***Specification***

6. The disclosure is objected to because of the following informalities: in paragraph 32 the colon used in the second line should apparently be a quotation mark.

Appropriate correction is required.

***Claim Objections***

*Did*  
7. Claims 2-10, <sup>and</sup> 12-20, ~~22~~, and ~~23~~ are objected to because of the following informalities: the word "Claim" in line one of each claim should be lowercase. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1, 5, 6, 11, 15, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "core" in claims 1, 5, 6, 11, 15, and 16 is used by the claim to mean "substrate", while the accepted meaning in the art of optical waveguides is "a medium used to propagate light." The term is indefinite because the specification does not clearly redefine the term.

11. For the purpose of this office action, the examiner has interpreted this limitation to mean “a substrate” as suggested in line 4 of paragraph 21.

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1, 3, 4, 8, 11, 13, 14, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by *Towle et al (US 6,834,133 B1)*.

14. Towle et al teach an optoelectronic packaging and method of packaging as shown in figures 1 and 2. Towle et al teach a substrate (122) bearing a first surface and a first cladding layer (120) positioned on the first surface of the substrate (122). A contact pad (124) is positioned on a portion of the surface of the first cladding layer (120) and a second cladding layer including a waveguide channel (112) is positioned on a further surface portion of the first cladding layer (120). The package also includes an optical means (116) that is in optical communication with the waveguide channel (112) and is in electrical contact with the contact pad (124) as is shown in the figures. The optical element is mounted on a transmitter/receiver chip (114) that is coupled to the second cladding layer (112). Towle et al teach that the transmitter/receiver chip is flip chip bonded to the waveguide and contact pad (see column 3, line 44 to column 5, line 9). Flip chip bonding involves the use of C4 joints as is well known in the semiconductor art.

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 2, 9, 10, 12, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Towle et al (US 6,834,133 B1)* as applied to claims 1, 3, 4, 8, 11, 13, 14, and 18 above, and further in view of *Oono et al (US 2005/0105860 A1)*.

17. Towle et al teaches that the optoelectronic packaging is an PCB or an optoelectronic card used to align a waveguide and an optoelectronic device. However, Towle et al does not explicitly state that the optoelectronic device is a VCSEL. Towle et al also does not teach that the cladding layers are organic. Oono et al teach an optoelectronic device that couples a VCSEL (15) to an optical waveguide (112) as shown in the figures. Oono et al also teaches to use organic materials in claddings (see paragraph 171).

18. It would have been obvious to one of ordinary skill in the art at the time of invention to use a VCSEL as taught by Oono et al and to use an organic material as a cladding as taught by Oono et al in the optoelectronic package taught by Towle et al. Motivation to do this is that VCSEL emit light signals in a very defined direction thus making them more efficient in coupling light. Motivation to use an organic material would be that organic materials are known in the art to be stronger and more durable than inorganic materials such as glass and silica.

Art Unit: 2883

19. Claims 5-7 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Towle et al (US 6,834,133 B1)* as applied to claims 1, 3, 4, 8, 11, 13, 14, and 18 above, and further in view of *Yoshizawa et al (US 2002/0084522 A1)*.

20. Towle et al teaches that an optical solder is used to couple light between the emitter and the waveguide. Towle et al teaches that the solder is optically transmissive in the same range as the waveguide. Towle et al do not teach that the substrate is made of a material consisting of either epoxy glass, thick yarns or a low-expansion s-glass with a CTE as low as 10ppm/degree so as to alleviate the strain at the C4 joints. Yoshizawa et al teach an optoelectronic package where the substrate is formed of a material having a low thermal expansion coefficient such as a glass-fiber epoxy resin that reduces the stress of the flip chip bond by reducing the difference between the CTE of the substrate and chip (see paragraph 21). Yoshizawa et al teaches that the CTE of the substrate can be as low as 10 ppm/degree (see paragraph 25).

21. It would have been obvious to one of ordinary skill in the art at the time of invention to form the substrate of the device taught by Towle et al out of a material such as a glass-fiber epoxy resin as taught by Yoshizawa et al. Motivation to do this would be to reduce stress by reducing the difference in the thermal expansion between the semiconductor chip and the substrate (see paragraph 21).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.



Art Unit: 2883

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Derek L. Dupuis  
Group Art Unit 2883



Frank G. Font  
Supervisory Patent Examiner  
Technology Center 2800